

IN THE CLAIMS:

Claims 1-19, 21-28 and 31-33 have been amended herein. New claims 34-36 have been added. All of the pending claims 1 through 36 are presented below. This listing of claims will replace all prior versions and listings of claims in the application. Please enter these claims as amended.

Listing of Claims:

1. (Currently Amended) An isolated or recombinant nucleic acid sequence or functional equivalent or functional fragment thereof encoding an apoptin-associating proteinaceous substance that induces apoptosis.
2. (Currently Amended) The isolated or recombinant nucleic acid sequence according to of claim 1 wherein said apoptin-associating proteinaceous substance co-localizes with apoptin.
3. (Currently Amended) The isolated or recombinant nucleic acid sequence according to claim of claim 1-or 2, wherein said apoptin-associating proteinaceous substance binds to the mouse transcription factor YY1.
4. (Currently Amended) The isolated or recombinant nucleic acid sequence according to of claim 1-or 2, wherein said isolated or recombinant nucleic acid sequence is derived from a cDNA library.
5. (Currently Amended) The isolated or recombinant nucleic acid sequence according to of claim 4 wherein said cDNA library comprises human cDNA.

6. (Currently Amended) A The isolated or recombinant nucleic acid sequence according to of claim 1—that, wherein said isolated or recombinant nucleic acid sequence hybridizes to a nucleic acid molecule encoding an apoptin-associating proteinaceous substance as shown in figure 1 or 2 of SEQ ID NO:4 or SEQ ID NO:5.

7. (Currently Amended) The isolated or recombinant nucleic acid sequence according to of claim 6—that, wherein said isolated or recombinant nucleic acid sequence is at least 70% homologous to—a the nucleic acid molecule encoding an apoptin-associating proteinaceous substance as shown in figure 1 or 2, or to a functional equivalent or functional fragment thereof of SEQ ID NO:4 or SEQ ID NO:5.

8. (Currently Amended) A vector comprising—a the isolated or recombinant nucleic acid sequence according to of claim 1.

9. (Currently Amended) A the vector—according to of claim 8 comprising a gene-delivery vehicle.

10. (Currently Amended) A host cell comprising—a the isolated or recombinant nucleic acid sequence according to of claim 1—or comprising a vector according to claim 8.

11. (Currently Amended) The host cell according to of claim 10 wherein said host cell is a yeast cell or a vertebrate cell.

12. (Currently Amended) An isolated or recombinant apoptin-associating proteinaceous substance that induces apoptosis and is encoded by the isolated or recombinant nucleic acid sequence of claim 1.

13. (Currently Amended) The isolated or recombinant apoptin-associating proteinaceous substance ~~according to~~ of claim 12 wherein said isolated or recombinant apoptin-associating proteinaceous substance co-localizes with apoptin.

14. (Currently Amended) The isolated or recombinant apoptin-associating proteinaceous substance ~~according to~~ of claim 12 or 13 which, wherein said isolated or recombinant apoptin-associating proteinaceous substance binds to the mouse transcription factor YY1.

15. (Currently Amended) An isolated or recombinant apoptin-associating proteinaceous substance that induces apoptosis, wherein said proteinaceous substance is encoded ~~by a~~ by the isolated or recombinant nucleic acid sequence according to any one of claims of claim 1, 6 or 7.

16. (Currently Amended) A—The isolated or recombinant apoptin-associating proteinaceous substance ~~according to~~ of claim 12 comprising at least a part of an amino acid sequence ~~as shown in figure 3 of SEQ ID NO: 6~~ or a functional equivalent or functional fragment thereof.

17. (Currently Amended) An isolated or synthetic antibody that specifically recognizes ~~a~~ an isolated or recombinant apoptin-associating proteinaceous substance or functional equivalent or functional fragment thereof ~~according to~~ of claim 12.

18. (Currently Amended) An isolated or recombinant apoptin-associating proteinaceous substance that induces apoptosis or a functional equivalent or part thereof that is specifically recognized by ~~an~~ the antibody ~~according to~~ of claim 17.

19. (Currently Amended) A method of inducing apoptosis, said method comprising: contacting a susceptible cell with ~~a the isolated or recombinant nucleic acid sequence according to any one of claims 1, 6 or 7, claim 1 or a proteinaceous substance according to any one of claims 12 or 16~~, wherein apoptosis in said susceptible cell is induced.

20. (Original) The method according to claim 19 wherein said apoptosis is p53-independent.

21. (Currently Amended) The method according to claim 19 further comprising contacting said susceptible cell with ~~a an isolated or recombinant nucleic acid sequence encoding apotin or a functional equivalent or fragment thereof or with an with apotin-polypeptide or a functional equivalent or fragment thereof~~.

22. (Currently Amended) A composition comprising ~~a the isolated or recombinant nucleic acid sequence according to any one of claims of claim 1, 6 or 7 or a an isolated or recombinant apotin-associating proteinaceous substance according to any one of claims claim 12 or 16~~.

23. (Currently Amended) The composition ~~according to of Claim 22, claim 22~~, further comprising ~~a an isolated or recombinant nucleic acid sequence encoding apotin or a functional equivalent or fragment thereof or the polypeptide apotin or a functional equivalent or fragment thereof~~.

24. (Currently Amended) The composition ~~according to Claim 23, of claim 23~~, wherein said composition induces apoptosis.

25. (Currently Amended) The composition ~~according to Claim 24, of claim 24~~, wherein said apoptosis is p53-independent.

26. (Currently Amended) A method ~~for~~ of treating an individual ~~in need thereof carrying a disease where suffering from~~ enhanced cell proliferation or decreased cell death ~~is observed~~, said method comprising:
administering to said individual ~~a~~ the composition ~~according to~~ of claim 24 in an amount sufficient to treat symptoms of said disease.

27. (Currently Amended) A method ~~for~~ of detecting the presence of cancer cells or cells that are cancer prone in a sample of cells, said method comprising:
transfecting cells in said sample with ~~a~~ the isolated or recombinant nucleic acid sequence according to any one of claims claim 1, 6 or 7; and
determining the percentage of apoptosis of cells in said sample, wherein a decrease in apoptosis as compared to normal cells is indicative of the presence of cancer cells or cells that are cancer prone.

28. (Currently Amended) A method ~~for~~ of detecting the presence of cancer cells or cells that are cancer prone in a sample of cells, said method comprising:
transfecting said cells in said sample with ~~a~~ the isolated or recombinant nucleic acid sequence according to any one of claims claim 1, 6 or 7; and
determining the intracellular localization of a proteinaceous substance derived from said isolated or recombinant nucleic acid sequence in cells in said sample, wherein localization of said proteinaceous substance in the nucleus is indicative of the presence of cancer cells or cells that are cancer prone.

29. (Original) The method according to claim 28, wherein the presence of said proteinaceous substance in said cells is detected by immunostaining said cells with an antibody.

30. (Original) The method according to claim 29, wherein said antibody comprises an antibody that specifically recognizes an apoptin-associating proteinaceous substance or functional equivalent or functional fragment thereof.

31. (Currently Amended) A method ~~for~~ of identifying a putative cancer-inducing agent, said method comprising:

exposing a sample of cells to said a cancer-inducing agent;

contacting said sample of cells in said sample with a the isolated or recombinant nucleic acid sequence according to any one of claims claim 1, 6 or 7 or a proteinaceous substance according to one of claims 12 or 16; and

detecting the presence of cancer cells or cells that are cancer prone by determining ~~the a~~ percentage of apoptosis of cells in said sample of cells, wherein said percentage is indicative of the carcinogenesis of said agent.

32. (Currently Amended) A method ~~for~~ of identifying a putative cancer-inducing agent, said method comprising:

exposing a sample of cells to said a putative cancer-inducing agent;

contacting said sample of cells in said sample with a nucleic acid according to any one of claims 1, 6 or 7 or a proteinaceous substance according to one of claims of claim 12 or 16; and

detecting the presence of cancer cells or cells that are cancer prone by determining the intracellular localization of said proteinaceous substance, wherein the presence of said cancer cells or cells that are cancer prone in said sample of cells is indicative of the carcinogenesis of said agent.

33. (Currently Amended) The method according to claim 31, wherein said putative cancer-inducing agent comprises a gene or functional fragment thereof nucleic acid sequence.

34. (New) An isolated nucleic acid sequence encoding the peptide of SEQ ID NO:6.

35. (New) A process for producing a peptide comprising the peptide of SEQ ID NO:6, the process comprising:

recombinantly expressing the isolated nucleic acid sequence of claim 34 in a cell.

36. (New) A peptide produced by the process of claim 35.